PERMIT ATTACHMENT EE

Closure Plan – Section 11 of the Permit Application

Permit Number: WA 7890008967

The following listed documents are hereby incorporated, in their entirety, by reference into this Permit. Some of the documents are excerpts from the Permittees' DBVS Facility Research, Development, and Demonstration Dangerous Waste Permit Application dated May 10, 2004 (document #04-TED-036); hereafter called the Permit Application. Ecology has, as deemed necessary, modified specific language in the attachments. These modifications are described in the permit conditions (Parts I through V), and thereby supersede the language of the attachment. These incorporated attachments are enforceable conditions of this Permit, as modified by the specific permit conditions.

CONTENTS

FIGURES

11.0 CLOSURE PLAN

11.1 INTRODUCTION

Closure of RD&D activities differs from closure of a full-scale operating unit at the Hanford Site. All equipment and facilities related to the Test and Demonstration Facility are only temporarily located west of the 241-S Tank Farm; no permanent waste storage or disposal facilities will be constructed at the Test and Demonstration Facility. Therefore, the scope of closure activities is limited to those applicable to decontamination and removal of treatment equipment, decontamination of the site (if applicable), and restoration of the site to its pre-RD&D activity state. The vadose zone under the Test and Demonstration Facility may already be contaminated from previous tank farm activities and is not within the scope of the Test and Demonstration Facility closure plan.

11.2 REGULATORY COMPLIANCE

Closure and partial closure activities will comply with applicable portions of WAC 173-303-610. Some equipment may be removed during the course of the RD&D project and the remainder will be removed at the completion of the project. A one-year extension to the closure period may be requested. Ecology Publication #94-111, *Guidance for Clean Closure of Dangerous Waste Facilities*, will be used to guide closure activities.

11.3 CLOSURE PERFORMANCE STANDARDS

Per WAC 173-303-610(2)(a), the Test and Demonstration Facility will be closed in a manner that protects human health and the environment, minimizes the need for further maintenance, and returns the land to the appearance and use of surrounding land areas. Closure will require the removal and disposal of all dangerous waste present, removal of contaminated process equipment and contaminated structural components, and removal of all soil contaminated by RD&D operations in accordance with the HFFACO approach to closure. Any materials, equipment, or structures removed will be designated in accordance with WAC 173-303-070 and disposed. Equipment that does not meet the clean debris rule or cannot be 100% inspected will be managed as mixed waste and disposed appropriately.

11.4 CLOSURE ACTIVITIES

Closure activities will entail decontamination and/or removal and disposal of all equipment. The general order of closure activities has been selected to minimize the potential release of mixed waste constituents by removing the bulk of the mixed waste early in the closure process. Work will be performed in a manner that verifies worker exposure to dangerous and/or mixed waste, radioactivity, hazardous chemicals, or other workplace hazards will meet ALARA.

11.4.1 Removing Dangerous Waste

Any residue remaining in the WRS and DBVS piping and equipment will be removed during decontamination and managed as mixed waste. In response to OSWER Guidance Manual, Section 4.9.1(2), the maximum quantity of tank waste in storage and/or treatment at any given time during the active life of the facility will be the storage quantities noted in Table 1-2 plus

untreated bounding waste quantities of 7,240 kg (15,970 lb) in the mixer/dryer and 57,940 kg (127,720 lb) of waste in one container awaiting vitrification.

11.4.2 Decontaminating Structures, Equipment, and Soil

Structures and equipment anticipated to be contaminated at the start of the closure period include tank and pipe surfaces, ancillary equipment, and concrete containment structures. Decontamination technologies will be selected based on demonstrated effectiveness in a radioactive environment and the ability to successfully achieve the closure performance standards.

Specific methods of decontamination for the treatment unit components and equipment will be determined at the time of closure. These methods will be based on information in the operating record, existing radiation levels, and ORP plans for future use, if any, of the equipment.

Air emission control equipment will remain in-place and in operation as necessary to facilitate treatment equipment deactivation and decontamination. Equipment will be taken out of service in stages as contamination is progressively removed or reduced. Compliance with applicable air emission standards will be maintained. Air permits in place during the operational phase will be reviewed to determine applicability during the closure period and modified as necessary per applicable regulations.

11.4.3 Sampling and Analysis to Identify Extent of Decontamination/Removal and to Verify Achievement of Closure Standard

The Sampling and Analysis Plan (SAP) will describe the approach to be followed for confirming that decontamination and/or removal activities have attained the closure performance standard. Prior to closure, this closure plan will be revised to specify sampling and analysis techniques in the Test and Demonstration Facility SAP.

The SAP will be prepared to evaluate the extent of soil contamination and the effectiveness of decontamination at the Test and Demonstration Facility site.

Sections will include:

- **Sampling Objectives.** Sampling will be conducted to evaluate the extent of contamination and the decontamination effectiveness at the Test and Demonstration Facility.

- **Analytical Parameters.** Analytical parameters, methods, and specific analytical and sampling procedures will be based on knowledge of the operations and wastes processed (i.e., process knowledge) in the Test and Demonstration Facility. A list of indicator parameters or Contaminants of Concern (COCs) will be developed based on potential COCs present and the closure performance standard (designation and/or risk-based limits). The analyses will follow the methods described in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (EPA SW-846) and/or other approved methods.

- **Sampling Methods.** Sampling will be performed in a manner consistent with EPA and Ecology guidelines:
  - Quality Assurance/Quality Control Guidance for Removal Activities: Sampling and QA/QC Plan and Data Validation Procedures, Interim Final (EPA 1990)
  - Guidance on Sampling and Data Analysis Methods (Ecology 1995).
- **Sampling Equipment, Containers, and Preservation.** The sampling equipment containers, and sample preservation techniques will be in accordance with procedures outlined in *Test Methods for Evaluating Solid Waste, Physical Chemical Methods* (EPA 1986).
- **Chain-of-Custody Record.** The chain-of-custody record will ensure the integrity of the samples, from collection through analysis to final disposition.

11.5 SCHEDULE FOR CLOSURE

A closure date has been tentatively identified in Figure 1-2, Proposed Project Schedule, for the Test and Demonstration Facility. A detailed closure schedule will be developed and submitted prior to facility closure. If closure plan modifications are necessary to achieve clean closure, a revised schedule will be proposed as part of the permit modification package.

11.6 CERTIFICATION OF CLOSURE

Within 60 days of completion of closure activities for the facility, a copy of the closure certification, signed by the owner/operator, contractor representative, and an Independent Qualified Registered Professional Engineer, will be transmitted, via registered mail, to Ecology and placed in the administrative record. Figure 11-1 presents a sample Closure Certification Statement. The certification of closure will cover only the portions of the facility covered by the closure activities proposed. The certification will occur upon disposition of waste generated from decontamination and completion of closure activities. The Independent Qualified Registered Professional Engineer will provide a signed statement that meets the applicable requirements of WAC 173-303-610(6), certifying that the closure activities were performed in accordance with the technical specifications of the approved closure plan for the facility.

Figure 11-1. Sample Closure Certification Statement

CLOSURE CERTIFICATION

FOR

BULK VITRIFICATION TEST AND DEMONSTRATION FACILITY

Hanford Site

U.S. Department of Energy

We, the undersigned, hereby certify that closure activities for the Bulk Vitrification Test and Demonstration Facility were performed in accordance with the specifications in the approved closure plan.

Owner/Operator	Signature	Date
Contractor Representative	Signature	Date
Independent Qualified Registered Professional Engineer	Signature	Date

Washington State PE No. _____